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ABSTRACT

One hundred and ten college students, placed in 22 problem solving discussion groups, interacted for three fifty minute periods each. Three trained observers systematically recorded the interaction. Group members were classified as being task or socio-emotionally oriented and the functional leader in each group was identified by role category. Following the final discussion period each group member was instructed to write a 150 word essay dealing with the members' perceptions of what constituted the group solution to the discussion and their affective relationships with other group members. These essays were subjected to cloze procedure construction and analysis. The results tended to support the conception that groups develop a language syntax and that differential syntactical comprehension by group members serves to elucidate their respective roles within that context. However, the experimenter's earlier contention that an analysis of a group's language will differentiate the two dimensions of leadership (task and socio-emotional) along with their respective followers remains undemonstrated. (Author/LG)

LEXICAL DIMENSIONS OF SMALL GROUP LEADERSHIP

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Rationale

Criticism is often leveled against small group research in that it concentrates on everything but message content. Further, that there is a definite void in the emphasis with communication variables in the small group setting (Borman, 1970; Gouran, 1970; Leathers, 1971; and Fisher and Hawes, 1971). Research efforts in the area of message analysis might well contribute to our knowledge both of the small group, and also to the interaction of this communication format with message variables. Research on small group messages may soften Mortensen's (1970) indictment that in the area of small group research there is a relative lack of "communication orientation."

One of the message variables in need of extensive research at the small group level is that of lexical choice. Lexical choice concerns itself with the options a communicator has available to him in regard to language composition and structure when coding a message. In theory, the "empathic" models of communication posit that there is an emergent pattern to the coding behavior of sources and receivers within a dyad. Further that this pattern (structure) produces a high degree of similarity between encoding and decoding processes. Empirically, very little research has been done with lexical choice in the small group setting. The data that is available tends to suggest that members encode and decode messages in the image of the group in which they participate and subsequently perceive the group to possess a language identity of its own.

In contrast to the study of message variables in the small group setting, the study of leadership has been the focus of considerable research in the last two decades. Small group researchers, whether from the disciplines

of psychology, sociology, or communication, have devoted more effort to the study of leadership than perhaps any other variable in the small group process (Lashbrook and Lashbrook, 1972). Abundant evidence attests to the fact that effective or ineffective leadership significantly affects the productivity, efficiency, and satisfaction of the group. Despite this plethora of research on leadership, there is a paucity of empirical literature concerning the relationship between communication and subsequent leadership within the group. When these phenomena have been cojointly investigated, it is often only in terms of communication networks, frequency of interaction between members, status differentiation, etc. Rarely are the messages themselves the objects of study or their relationship to the functional aspects of small group communication considered.

The present investigation attempted to merge the study of leadership with an analysis of small group language structure. This endeavor sought to provide a unique perspective of the functional aspects of language and its inherent relationship to the emergence of leadership in the small group. It was felt that only through the study of the coding behavior of the group and its subsequent role structures could we clearly establish the functional relationship between communication and leadership. Consequently, the discipline of communication may be able to offer new insight into the small group process previously neglected by those in other realms of the social sciences.

Related Literature

Much of the previous research in the area of small group influence can be characterized in terms of attempt to both describe leadership behavior and predict its emergency. Most of this research has been based on one of

three approaches: trait, situational, or functional. Adherents to the trait approach contend that certain individuals possess characteristics which allow them to become leaders. Advocates of the situational position suggest that environmental variables determine who will lead. The proponents of a functional approach claim that those members who best perform the group functions will be perceived as leaders. The present investigation conceptualized leadership from a functional perspective.

Previous researchers (Slater, 1955; Bales, 1958; Likert, 1961; Fleishman and Harris, 1962; and Helsin and Dunphy, 1964) have suggested that at least two types of leaders emerge in a small group: a task and a socio-emotional leader. Determination of these leaders has been in terms of a given member's performance of certain role behaviors within the small group. The task leader, who is usually named the group leader, participates more than other members and offers more problem-solving contributions (i.e., orientation, opinion, suggestions). The socio-emotional leader however is liked best and offers more reaction contributions (i.e., agreement, tension release, solidarity) when compared to non-leader members. Research also indicates that groups can perform effectively when both roles are performed by one or more group members.

In contrast to the other two previously mentioned conceptions of leadership, the functional approach has been found to be more useful in describing the communication behaviors of leaders. However, analysis of these communicative behaviors too often ceases with a frequency count of their occurrence per respective group member. Few attempts are made to analyze the message contributions in terms of their lexical and structural or syntactical arrangement. The present investigation posited that leadership is a role

behavior performed within the group as suggested by the functional theorists, but also that it is manifested in terms of syntactical competence with the group language. Further, there exists two dominant syntactical dimensions of a group's language: a task and socio-emotional syntax. A leader performing the role of task specialist will engage in verbal behaviors (i.e., opinions, suggestions, orientation) employing distinct syntactical strategy from that utilized by the socio-emotional role specialist within the group. This distinction will be maintained even if both roles are performed by the same member. Further, that non-leaders can be expected to define their respective roles within the two syntax. However, for the non-leaders the syntax will be used primarily to define classifactory roles whereas for the leaders the syntax will reference both classification and functional influences.

Chowdhry and Newcomb (1952) provide evidence that suggests leaders are more accurate than non-leaders in their estimates of the attitudes of other members toward issues relevant to the group's goals. Collins and Guetzkow (1964) imply that this phenomena occurs only after the discussion has taken place. Research conducted by Holdridge, et al., (1971) and Holdridge and Larsen, (1971) indicate that group participatory behavior is highly correlated with individual group member summaries. Previous research has not attempted to differentiate between summaries of task and socio-emotional aspects of the group process. Such an attempt was made in the present study.

A study by Tailand (1954) confirmed the hypothesis that leaders of groups influence the formation of group opinion by bringing it in line with their personal views. Analogous with these findings on group opinion, the comprehension of a group's unique language should be greater for leaders than non-leaders and the resultant group syntax should have a greater correspondence

to the leaders' as opposed to the non-leaders' per respective group function: task and socio-emotional. The present study suggests that the determination of these two leader functions within a group, in addition to follower functions, can be made through an analysis of the lexical structure of respective members' messages.

As mentioned above, very little research has been done with lexical choice in the small group setting. Holdridge, Larsen, and Lashbrook (1971), in the initial study of lexical choice and small group involvement, found evidence that group members encoded and decoded messages in the image of the group in which they participated. A later study (Holdridge and Larsen, 1971) substantiated these findings for groups composed of both college and secondary students. These results support the thesis that members encode and decode messages in light of the self image of the group and subsequently perceive it to possess a language of its own. The present study suggested that this unique language would be functionally two-dimensional.

It was reasoned that one way to approach the study of lexical choice would be to analyze the messages which were the products (group member summaries) of an on-going discussion. This method of examining message variables was employed by Dunphy (1964) in his study of phase movements and role differentiation, and by Holdridge, Larsen, and Lashbrook (1971) and Holdridge and Larsen (1971) in their research on involvement as a correlate of lexical choice in the small group.

The latter studies employed the technique of cloze procedure (Wilson, 1953) to assess participants, observers, and non-participants/non-observers comprehension of the group's coding behavior. A possible limitation of this technique for the analysis of verbal behavior lies with the existence of

various methods for construction of the cloze procedure test. Currently, most researchers limit construction to either a structural, lexical, abstract (non-deletion of functional terms), or concrete deletion pattern. At present the debate as to which technique better, measures a given dimension of language has not been resolved (Ohnmacht, et al., 1970). Therefore, the present research utilized two forms of cloze procedure testing. A comparison was made between the lexical and structural deletion patterns in an attempt to determine the merits of each in the analysis of a group language structure. While both methods may refer to different aspects of subject language variance, whether or not these dimensions are independent in the small group setting was viewed as an empirical question. The authors contended that since the syntax of concern would be group composites the methods of cloze procedure construction would yield positively correlated scores.

From the above cited considerations the following hypotheses were generated for this study:

H_1: Group leaders (task and socio-emotional) will comprehend other group members' summaries (task and socio-emotional) to a greater degree than non-leaders will comprehend other group members.

H_2: Task (procedural) leaders will comprehend task-related summaries of other group members to a greater degree than socio-emotional summaries.

H_3: Socio-emotional (emergent) leaders will comprehend socio-emotional-related summaries of other group members to a greater degree than task-related summaries.

Logistics

Subjects

One-hundred ten subjects were selected from introductory communication courses at the University of Illinois and Illinois State University. These

subjects were randomly assigned to twenty-two, 4-6 member groups. Actually one-hundred forty-five subjects participated in the study, but because of attrition only one-hundred ten subjects (22 groups) provided data for the study. Of these only 88 scores could be computed for actual analysis.

Procedure

Each group was engaged in a problem solving discussion concerning the administration's role in ensuring student input into evaluation of teachers for purposes of promotion, retention and tenure. The groups remained intact for three periods of 50 minutes each.

Each group's interaction was recorded by three trained observers utilizing the PROANA 5 analysis technique. This technique was employed to provide data for classifying group members as to being task or social-emotionally oriented. PROANA 5 allows for the identification of functional aspects of participatory behavior by distinguishing between interactive and non-patterned communication that occurs within a small group discussion (Lashbrook, 1969; Bokaden, Lashbrook, and Champagne, 1971).

Pre-experiment intraclass reliabilities (Lashbrook, 1968) for the trained observers utilized in this study were determined to be minimally .96 for interactive communication and .76 for non-patterned communication.

At the end of the first and second meetings each group was asked to write an answer to a specific charge to be evaluated by the class instructor. The first charge was significantly different from the second in intent. It asked the groups to define characteristics of good and bad teaching. The second charge asked the groups to state their criteria for ensuring student involvement in teacher evaluation. It was felt that differences in charges would require for each discussion period variance in interpretation as to

how the discussion related to the overall topic. Such variance, it was felt would provide opportunities for each group to have emerging leaders (see operational definitions for leadership).

Following the final period of discussion, each member was instructed to write two essays of at least 150 words in length. One essay dealt with the member's perception of what constituted the group solution to the discussion task and the second with his affective relationships with other group members.

Test Instrument

The test instrument for message comprehension was devised in the following manner. The participant's essays on both topics were collated to produce two group (task-related and socio-emotional) summaries of approximately 750 words in length. Summaries were compiled to allow 80 deletions per essay (excluding each group member's personally authored material). Words were deleted in the manner suggested by the two Cloze procedure techniques mentioned previously (40 structural and 40 lexical).

Four days after the final discussion, the instrument was distributed to the group for purposes of data collection. The participants were instructed to fill out all of the sections of the instrument except those they had written.

Operational Definitions

PROANA 5 data provided the following operational classifications of the group members:

> Task Leader--That individual member who interacted most with a majority of members of the group for two periods of discussion one of which was the first and had a significant amount of non-patterned (ranked first or second) communication for all three periods of discussion.

Socio-emotional (emergent) Leader--That individual member who had a significant amount (no less than second ranked) of interaction with all members of the group for at least one period of discussion other than the first.

Task Follower--A non-leader member who interacted more with a task leader than a socio-emotional leader for all three periods of discussion.

Socio-emotional (emergent) Follower--A non-leader member who interacted more with a socio-emotional leader than a task leader for those periods in which emergent leadership surfaced.

Group summary data provided for the following operational definitions:

Task Summary Measure--A group member's cloze procedure score on the composite task summary essays. This score was based on the proportion of correct responses per base number deletions.

Social Emotional Measure--A group member's cloze procedure score on the composite socio-emotional summary essays. This score was based on the proportion of correct responses per base number deletions.

Control Subjects

In order to ascertain that the two cloze procedure essays were not measuring language redundancy as opposed to group language development, each group's combined essay was given to one subject selected from an analogous population. These completed essays thus served as controls for this study. Twenty-two subjects served as controls for the study.

Statistical Analysis

Prior to analysis the proportional cloze procedure data was transformed (arcsin) in order to allow for analysis via parametric techniques (Winer, 1962). However, for descriptive purposes mean scores will be reported as proportions.

In order to test the empirical relationship between lexical and structural cloze procedure techniques product moment correlation coefficients were computed on the transformed measures. For purposes of determining

appropriate error estimations a 2 x 2 x 2 factorial AOV design (with repeated measures on one factor) was employed utilizing the transformed data. Control group data were added to the AOV analysis for the repeated measures in the manner suggested in Winer (1962). A priori cell comparisons were performed via t-tests based on student's distribution. Experimental cell comparisons to the control subjects were made via t-tests based on Dunnett's distribution. Statistical significance for rejecting null hypotheses was set at .05. A transformation check was also provided.

Results

Correlation Analysis

For both types of essays (task and socio-emotional) product moment correlation coefficients were obtained between subject scores on the structural cloze procedure measure and the lexical cloze procedure measure. For experimental subjects a significant positive correlation of $r = .52$ ($p < .01$) was found between the structural and lexical cloze scores for the task summaries. A $r = .50$ ($p < .01$) was obtained for the experimental subjects for the two types of cloze measures for the socio-emotional essays. Such associations were expected by the authors on the rationale that group influenced syntax was being tapped in a similar general manner by both types of cloze deletion patterns. These findings were also consistent with the previously cited research (Ohnmacht, et al., 1970) which found a correlation of .42 for the two types of cloze procedure. Since factor analysis based on the .42 correlation had indicated both types of cloze deletion patterns to be associated with the same general factor, and given correlations of .50 or above for the experimental data of the study, the authors preceded to sum across the two methods in order to obtain a subject's score for the task

and socio-emotional summaries. This meant that the proportion of correct responses to the total for each essay would be based on 80 deletions (40 structural and 40 lexical).

Table 1 represents means, standard deviations and standard errors for the experimental subjects (n = 88) on both types of cloze procedure measures for the task and socio-emotional essays.

Analysis of Variance

Table 2 represents the results of a 2 x 2 x 2 analysis of variance on the transformed cloze procedure scores. Factor A of the analysis involves repeated measures for each subject (scores on the task and socio-emotional summaries). Factor B represents functional classifications for each subject as determined by the PROANA 5 analysis (task and socio-emotional functions). Factor C represents the role classification of each subject (leader or follower). It will be noted that the sum of squares for the control subjects for the two types of essays was added to the analysis of variance results in such a manner that it contributed to the estimate of the error for the repeated measures.

A Priori t-tests

Table 3 represents the cell mean proportions for both the experimental and control groups upon which data were collected.

It will be recalled that H_1 of the study suggested that group leaders would comprehend other group members' summaries to a greater degree than non-leaders would comprehend other group members. The results indicated group leaders regardless of function served or essay evaluated did score ($\overline{X}$ = 0.582) significantly higher ($t = 2.52$, $p < .05$) than those subjects classified as non-leaders ($\overline{X}$ = 0.530). Hypothesis one was thus confirmed.

Hypothesis two of the study suggested that task leaders would comprehend task summaries of other group members to a greater degree than socio-emotional summaries. The results show that task leaders ($\overline{X}$ = .644) did understand the task summaries to a significantly greater degree (t = 2.19, $p < .05$) than the socio-emotional summaries of other group members ($\overline{X}$ = .593). It should be pointed out, however, that the AOV procedure indicated that all experimental subjects comprehended the task summaries ($\overline{X}$ = .569) to a higher degree (t = 2.32, $p < .05$) than the socio-emotional summaries ($\overline{X}$ = .542). Thus, while H_2 was supported the general results tend to make the hypothesis trivial.

Hypothesis three suggested that socio-emotional (emergent) leaders would comprehend the social emotional summaries of other group members to a greater degree than task related summaries. The results of the study indicate this not to be the case. In fact the socio-emotional leaders comprehend the task summaries (X = .558) slightly more, though not significantly more (t = -1.06, $p < .05$) than the socio-emotional summaires ($\overline{X}$ = .533). Thus, H_3 was not confirmed by the results of the study.

Control Comparisons

It will be recalled that control subjects were not placed in groups and thus could not be classified as to function or role. They merely completed the cloze measures for both the task and social emotional essays of the experimental subjects according to group assignment. Analysis revealed that the experimental subjects did significantly (t = 10.36, $p < .05$) better on the essays ($\overline{X}$ = .556) than the control subjects ($\overline{X}$ = .317). Further analysis revealed that for the task summaries the experimental subjects ($\overline{X}$ = .569) comprehended significantly more (t = 11.63, $p < .05$) than the

control subjects ($\overline{X}$ = .302). For the socio-emotional essays the experimental subjects ($\overline{X}$ = .542) comprehended significantly more (t = 9.12), p $\leq$ .05) than the control subjects ($\overline{X}$ = .332). All t-tests representing control comparisons were based on Dunnett's distribution.

Transformation Check

The data for the parametric analyses utilized in this study were transformed via the arcsin transformation $X' = 2 \arcsin \sqrt{X}$. This was done because the raw data were proportions having the characteristic that $\sigma^2 = \mu(1 - \mu)$. One problem with utilizing such a transformation for data subjected to AOV procedures is that interpretable interaction effects may be cancelled out. As a check against such a possibility, the authors ran the AOV analysis on the raw proportions. The results were isormorphic to those reported in Table 2.

Conclusions

The results in regard to the first hypothesis (H_1) tend to suggest that differential comprehension of the group's syntax (leaders' comprehension greater than non-leaders') is primarily a result of a greater correspondence of the group's syntax with that of the leaders. These results would lend support to the authors' contention that leadership is a role behavior manifested in terms of syntactical competence with the group language. This conclusion would explicate the findings of Chowdry and Newcomb (1952) and Talland (1954) in regard to leaders' estimation of followers' attitudes and their influence upon group opinion. The authors recognize the teleological implications of the above conclusion but suggest that whether language acquisition and comprehension is a cause or effect of these previous findings must await further research.

As mentioned above, the confirmation of hypothesis two (H_2) is regarded as essentially trivial due to significantly greater comprehension by all experimental subjects of the task summaries as opposed to the socio-emotional summaries. In conjunction with the above result, hypothesis three (H_3) failed to be confirmed. The socio-emotional leaders tended to comprehend the task related summaries slightly more than the socio-emotional summaries.

In light of these two results, the authors contend that the classification schema employed in the present study designating socio-emotional leaders was inadequate in regard to the accepted conceptualization of socio-emotional leadership. Further, the emergent leaders categorized as socio-emotional were probably emergent task leaders. This conclusion would appear reasonable due to the nature of the task confronting the group (problem-solution) and the nature of the two post-discussion exercises which were essentially problem-solution subtasks of the overall discussion topic. This would precipitate the emergence of task specialists per respective discussion period. In addition to the above contention, the experimental groups employed in this investigation engaged in actual interaction for a very limited amount of time. Those studies reporting the emergence of a socio-emotional specialist typically employ groups of longer duration. These conditions tend to result in conflict emergence during periods of less structured interaction thus necessitating the functional emergence of a socio-emotional specialist.

In summary, the authors maintain that the results of the present study lend support to the conception that groups develop a language syntax and that differential syntactical comprehension by group members

serves to elucidate their respective roles within that context. The author's earlier contention that an analysis of a group's language will differentiate the two dimensions of leadership (task and socio-emotional) along with their respective followers remains problematic in view of the above findings. Employment of groups engaged in more extensive periods of interaction, less structured post-discussion tasks, and a more adequate classification of socio-emotional leadership may provide support for this contention.

Implications for Further Study

At present, the authors maintain that additional research is required for verification of the postulations included in the current investigation. It appears mandatory that these contentions be subjected to rigorous empirical verification prior to subsequent research into causality.

In addition to the above recommendations a major limitation upon this study's results concerns the implementation of probability theory in regard to the cloze procedure scoring. Currently, there does not exist an adequate lexicon of the population from which the subjects of this investigation were drawn. Therefore no attempt was made to establish the relative frequency with which lexical items are employed by this population. Subsequently this information could not be incroporated in the scoring technique. At present the essays contributed by the groups involved in this study are being thus analyzed and will provide this needed lexicon. Further researchers within this area will need and have available to them this required information. This will allow future use of information theory in regard to language analysis of the small group.

As Williams (1970: 284) states "the linguistic concern of the communication researcher is mainly how the characteristics of language enter into the larger framework of the characteristics of communication." The above investigation constitutes an initial step towards the integration of leadership theory with the functional aspects of communication via linguistic analysis. This type of approach may advance the discipline's development of an adequate theory of communication and focus concern on a relevant communication variable, namely the produce of human interaction: the message.

Table 1

Means, Standard Deviations and Standard Errors for Structural and Lexical Cloze Measures[1]

Type of Essay	Mean	SD	SE
Structural	.584	.131	.014
Task			
Lexical	.555	.137	.015
Structural	.550	.128	.014
Socio-Emotional			
Lexical	.536	.128	.014

[1] Based on untransformed proportions for 40 deletions per essay.

Table 2

2 x 2 x 2 Analysis of Variance With Repeated Measures on One Variable (A) [1]

Source of Variation	SS	df	MS	F
Control vs. all others	4.8135	1	4.8135	197.2746*
A-Type of Summary	.1312	1	.1312	5.3771*
AB	.0289	1	.0289	1.1845
AC	.0234	1	.0234	.9591
ABC	.0001	1	.0001	.0041
Error (W)	2.5607	105	.0244	
B-Type of Function	.6271	1	.6271	7.5151*
C-Type of Role	.5313	1	.5313	6.3667*
BC	.0491	1	.0491	.5885
Error (B)	7.0098	84	.0834	

[1] The control was considered as contributing to the error for the repeated measure on the A factor. Scores were transformed for this analysis.

* $p(< .05)$

Table 3

Individual Cell Mean Proportions for Experimental and Control Subjects [1]

Task Summaries				Socio-Emotional Summaries			
Task Function		Socio-Function		Task Function		Socio-Function	
Leaders	Followers	Leaders	Followers	Leaders	Followers	Leaders	Followers
0.644	0.565	0.558	0.510	0.593	0.537	0.533	0.507
Controls	0.302			0.332			

[1] Untransformed mean proportions.

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